

# Farm animal disease to increase with climate change

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Researchers looked at changes in the behaviour of bluetongue – a viral disease of cattle and sheep - from the 1960s to the present day, as well as what could happen to the transmission of the virus 40 years into the future. They found, for the first time, that an outbreak of a disease could be explained by changes to the climate.

In Europe, more than 80,000 outbreaks of bluetongue were reported to the World Animal Health Organisation between 1998 and 2010, and millions of animals died as a result of the disease. Bluetongue was previously restricted to Africa and Asia, but its emergence in Europe is thought to be linked to increased temperatures, which allows the insects that carry the virus to spread to new regions and transmit the virus more effectively.

Researchers produced a mathematical model that explains how the risk of an outbreak of bluetongue virus in Europe changes under different [climate](#) conditions. The team examined the effect of past climate on the risk of the virus over the past 50 years to understand the specific triggers for disease outbreak over time and throughout geographical regions. This model was then driven forwards in time, using predictive climate models, to the year 2050, to show how the disease may react to future [climate change](#).

Using these future projections, researchers found that in northern Europe there could be a 17% increase in incidence of the bluetongue [virus](#), compared to 7% in southern regions, where it is already much

warmer.

Professor Matthew Baylis, from the University's Institute of Infection and Global Health, said: "Previous study suggests that climate change will alter global disease distribution, and although we have significant knowledge of the climate triggers for particular diseases, more research is needed to identify what we think might really happen in the future.

"We have been able to show that the past emergence of a disease can be explained, in both space and time, by changes to recent climate. These results reinforce the belief that future climate change will threaten our health and well-being by causing infection to spread. Looking forward, this could help inform decision making processes on preparing for disease outbreaks and reduce the huge economic impact that farm animal diseases can have on communities."

The research is published in *Proceedings of the Royal Society Interface*.

Provided by University of Liverpool

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